

Inspection Report For Well: UT20736 - 04496

U.S. Environmental Protection Agency
Underground Injection Control Program, 8ENF-T
999 18th Street, Suite 300, Denver, CO 80202-2466

This form was printed on 9/24/2013

INSPECTOR(S): Lead: Roberts, Sarah
Others: Ajayi, Christopher

Date: 12/10/2013

Time: 2:15 am / pm

OPERATOR (only if different):

REPRESENTATIVE(S):

Chad Stevenson

PRE-INSPECTION REVIEW

Petroglyph Operating Company, Inc

Well Name: Ute Tribal 19-15

Well Type: Enhanced Recovery (2R)

Operating Status: AC (ACTIVE) as of 12/31/2002

Oil Field: Antelope Creek (Duchesne)

Location: SWSE S19 T5S R3W

Indian Country: X, Uintah and Ouray

Last Inspection: 8/29/2012

Allowable Inj Pressure: 1900 /

Last MIT: Pass 9/29/2010

Annulus Pressure From Last MIT: 1055

BLACK = POSSIBLE VIOLATION

GREY = DATA MISSING

INSPECTION TYPE: (Select One)

☐ Construction / Workover

☐ Response to Complaint

☐ Other

☐ Plugging

☒ Routine

☐ Post-Closure

☐ Witness MIT

ICIS Entered

Date 12/30/13

Initials D3

OBSERVED VALUES:

Tubing Gauge: ☒ Yes
☐ No

Pressure: U: 1816 L: psig
Gauge Range: 0-2000 psig

Gauge Owner: ☐ EPA
☒ Operator

Annulus Gauge: ☒ Yes
☐ No

Pressure: 0 psig
Gauge Range: 0-1000 psig

Gauge Owner: ☒ EPA
☐ Operator

Bradenhead Gauge: ☐ Yes
☐ No

Pressure: psig
Gauge Range: psig

Gauge Owner: ☐ EPA
☐ Operator

Pump Gauge: ☐ Yes
☐ No

Pressure: psig
Gauge Range: psig

Gauge Owner: ☐ EPA
☐ Operator

Operating Status:
(Select One) ☒ Active
☐ Being Reworked

☐ Not Injecting
☐ Production

☐ Plugged and Abandoned
☐ Under Construction

See page 2 for photos, comments, and site conditions.

Inspection Report For Well: UT20736 - 04496 (PAGE 2)

PHOTOGRAPHS:☐

Yes

☒


No

List of photos taken: _____

Comments and site conditions observed during inspection: _____

GPS: GPS File ID: _____

Signature of EPA Inspector(s):

☐

Data Entry

☐

Compliance Staff

☐

Hard Copy Filing

NOTICE OF INSPECTION



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, 999 18TH STREET - SUITE 500
DENVER, COLORADO 80202-2405

Date: 12/10/13

Notice of inspection is hereby given according to Section 1445(b) of the Safe Drinking Water Act (42 U.S.C. §300f et seq.).

Hour: 8:00a

Firm Name: Petroglyph Operating, Inc.

Firm Address: Roosevelt, UT, Antelope Creek Oil Field

REASON FOR INSPECTION:

For the purpose of inspecting records, files, papers, processes, controls and facilities, and obtaining samples to determine whether the person subject to an applicable underground injection control program has acted or is acting in compliance with the Safe Drinking Water Act and any applicable condition of permit or rule authorization.

SECTION 1445(b) of the SAFE DRINKING WATER ACT is quoted below:

Section 1445(b)(1): Except as provided in Paragraph (2), the Administrator, or representatives of the Administrator duly designated by him, upon presenting appropriate credentials, and a written notice to any supplier of water or other person subject to (a), or person subject (A) a national primary drinking water regulation prescribed under Section 1412(B) an applicable Underground Injection Control Program, or (C) any requirement to monitor an unregulated contaminant pursuant to subsection (a), or person in charge of any of the property of such supplier or other person referred to in clause (A), (B), or (C), is authorized to enter any establishment, ... facility, or other property of such supplier or other person in order to determine whether such supplier or other person has acted or is acting in compliance with this title, including for this purpose, inspection, at reasonable times, of records, files, papers, processes, controls, and facilities, or in order to test any feature of a public water system, including its raw water source. The Administrator or the Comptroller General (or any representative designated by either) shall have access for the purpose of audit and examination to any records, reports, or information of a grantee which are required to be maintained under subsection (a) or which are pertinent to any financial assistance under this title.

Sarah Roberts
Inspector's Name & Title (Print)

[Signature]
Inspector's Signature



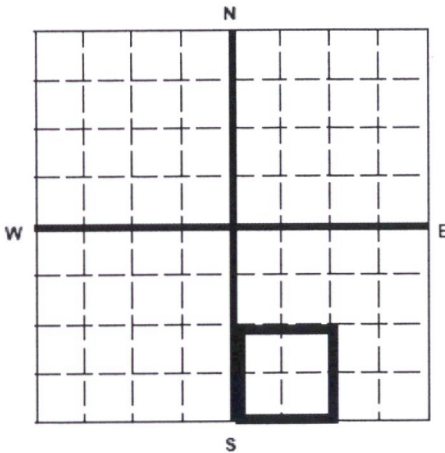
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on
Section Plat - 640 Acres



State
Utah

County
Duchesne

Permit Number
UT2736-04496

Surface Location Description

1/4 of 1/4 of SW 1/4 of SE 1/4 of Section 19 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location 719 ft. from (N/S) S Line of quarter section
and 1340 ft. from (E/W) E Line of quarter section.

U2 Entered

Date 4/4/17

Initial JS

WELL ACTIVITY

- ☐ Brine Disposal
☒ Enhanced Recovery
☐ Hydrocarbon Storage

TYPE OF PERMIT

- ☐ Individual
☒ Area

Number of Wells 111

Lease Name Ute Indian Tribe

Well Number UTE TRIBAL 19-15

INJECTION PRESSURE

TOTAL VOLUME INJECTED

TUBING - CASING ANNULUS PRESSURE
(OPTIONAL MONITORING)

MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	16	1753	1767	431		0	0
February	16	1829	1851	559		0	0
March	16	1833	1856	485		0	0
April	16	1783	1804	447		0	0
May	16	1806	1827	642		0	0
June	16	1787	1836	517		0	0
July	16	1811	1823	518		0	0
August	16	1792	1843	251		0	0
September	16	1775	1804	463		0	0
October	16	1759	1770	505		0	0
November	16	1710	1754	318		0	0
December	16	1752	1785	642		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Chad Stevenson, Water Facilities Supervisor

Signature

Date Signed

03/21/2017

Units of Measurement: **Standard**

Water Analysis Report

Production Company: **PETROGLYPH OPERATING CO INC - EBUS**Sales Rep: **James Patry**Well Name: **UTE TRIBAL 19-15 INJ, DUCHESNE**Lab Tech: **Kaitlyn Natelli**Sample Point: **Well Head**Sample Date: **1/6/2017**Scaling potential predicted using ScaleSoftPitzer from
Brine Chemistry Consortium (Rice University)Sample ID: **WA-345332**

Sample Specifics		Analysis @ Properties in Sample Specifics			
		Cations	mg/L	Anions	mg/L
Test Date:	1/25/2017	Sodium (Na):	3403.30	Chloride (Cl):	4000.00
System Temperature 1 (°F):	300	Potassium (K):	26.86	Sulfate (SO ₄):	50.00
System Pressure 1 (psig):	2000	Magnesium (Mg):	13.78	Bicarbonate (HCO ₃):	2318.00
System Temperature 2 (°F):	130	Calcium (Ca):	27.07	Carbonate (CO ₃):	
System Pressure 2 (psig):	50	Strontium (Sr):	4.14	Hydroxide (HO):	
Calculated Density (g/ml):	1.0041	Barium (Ba):	8.31	Acetic Acid (CH ₃ COO)	
pH:	8.40	Iron (Fe):	11.36	Propionic Acid (C ₂ H ₅ COO)	
Calculated TDS (mg/L):	9884.61	Zinc (Zn):	0.65	Butanoic Acid (C ₃ H ₇ COO)	
CO ₂ in Gas (%):		Lead (Pb):	0.00	Isobutyric Acid ((CH ₃) ₂ CHCOO)	
Dissolved CO ₂ (mg/L):	0.00	Ammonia (NH ₃):		Fluoride (F):	
H ₂ S in Gas (%):		Manganese (Mn):	0.18	Bromine (Br):	
H ₂ S in Water (mg/L):	5.00	Aluminum (Al):	0.13	Silica (SiO ₂):	20.96
Tot. Suspended Solids (mg/L):		Lithium (Li):	3.02	Calcium Carbonate (CaCO ₃):	
Corrosivity (Langlier Sat. Indx)	0.00	Boron (B):	4.43	Phosphates (PO ₄):	14.56
Alkalinity:		Silicon (Si):	9.80	Oxygen (O ₂):	

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO ₄ ·2H ₂ O		Celestite SrSO ₄		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	1.44	22.32	0.93	4.30	3.75	4.53	3.20	8.25	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.34
149.00	267.00	1.49	22.48	0.83	4.14	3.69	4.53	3.29	8.25	0.00	0.00	0.00	0.00	0.00	0.00	9.74	0.34
168.00	483.00	1.56	22.69	0.76	3.99	3.66	4.53	3.38	8.26	0.00	0.00	0.00	0.00	0.00	0.00	9.51	0.34
187.00	700.00	1.64	22.87	0.70	3.86	3.66	4.53	3.47	8.26	0.00	0.00	0.00	0.00	0.00	0.00	9.31	0.34
206.00	917.00	1.73	23.04	0.66	3.76	3.68	4.53	3.56	8.26	0.00	0.00	0.00	0.00	0.00	0.00	9.14	0.34
224.00	1133.00	1.83	23.19	0.63	3.68	3.71	4.53	3.64	8.26	0.00	0.00	0.00	0.00	0.00	0.00	9.00	0.34
243.00	1350.00	1.94	23.30	0.62	3.64	3.76	4.53	3.72	8.26	0.00	0.00	0.00	0.00	0.00	0.00	8.87	0.34
262.00	1567.00	2.05	23.40	0.61	3.63	3.83	4.53	3.79	8.26	0.00	0.00	0.00	0.00	0.00	0.00	8.76	0.34
281.00	1783.00	2.17	23.47	0.62	3.64	3.90	4.53	3.86	8.26	0.00	0.00	0.00	0.00	0.00	0.00	8.67	0.34
300.00	2000.00	2.29	23.53	0.63	3.67	3.99	4.53	3.92	8.26	0.00	0.00	0.00	0.00	0.00	0.00	8.59	0.34

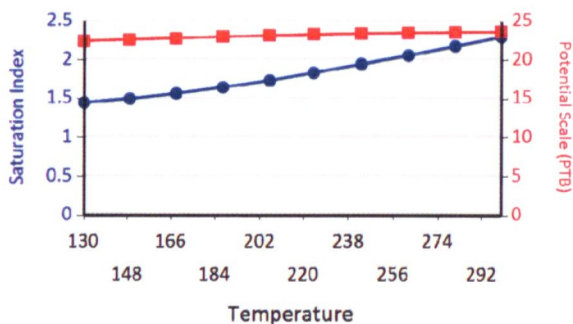
Water Analysis Report

Temp (°F)	PSI	Hemihydrate CaSO ₄ ~0.5H ₂ O		Anhydrate CaSO ₄		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54	0.42	0.00	0.00	3.39	19.62	1.68	13.86	11.21	8.83
149.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	0.43	0.00	0.00	4.12	22.16	2.07	16.46	11.65	8.83
168.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94	0.43	0.00	0.00	4.88	24.30	2.49	19.27	12.15	8.83
187.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	2.11	0.43	0.00	0.00	5.64	25.71	2.92	21.79	12.66	8.84
206.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	2.27	0.43	0.00	0.00	6.39	26.56	3.34	23.90	13.18	8.84
224.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	0.43	0.00	0.00	7.13	27.02	3.77	25.51	13.71	8.84
243.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	2.53	0.43	0.00	0.00	7.84	27.27	4.19	26.63	14.24	8.84
262.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	2.64	0.43	0.00	0.00	8.54	27.39	4.60	27.35	14.76	8.84
281.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73	0.43	0.00	0.00	9.22	27.46	5.00	27.77	15.28	8.84
300.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	2.81	0.43	0.00	0.00	9.86	27.49	5.39	28.01	15.77	8.84

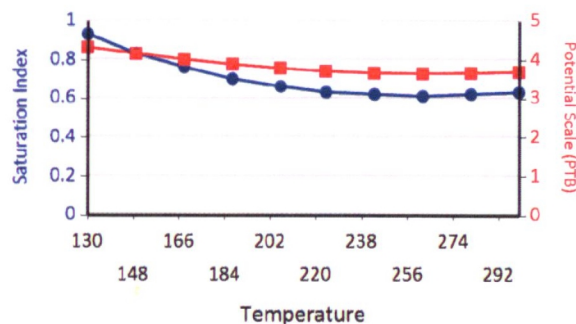
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

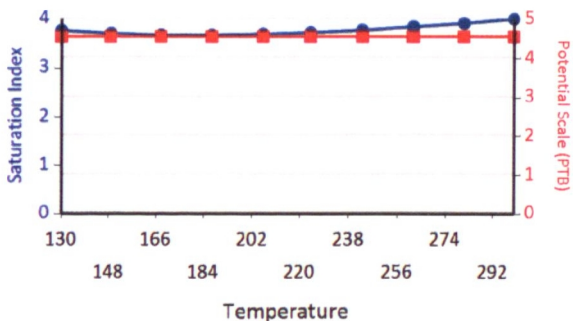
Calcium Carbonate



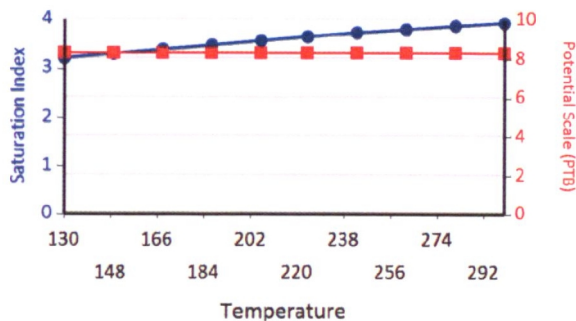
Barium Sulfate



Iron Sulfide

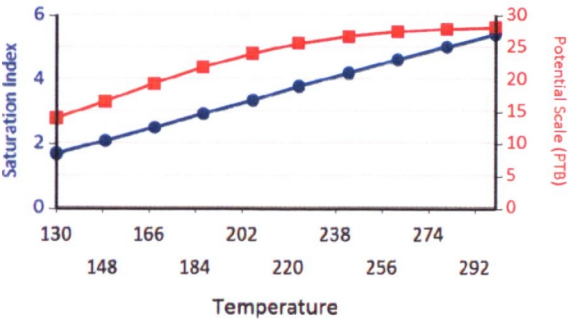


Iron Carbonate

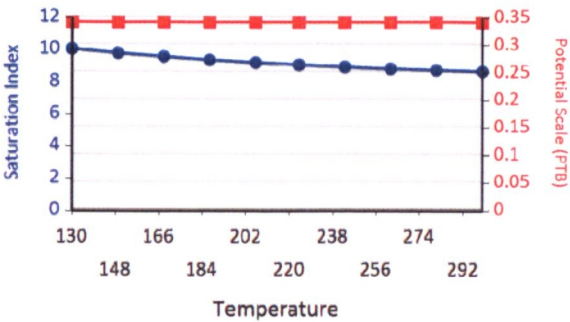


Water Analysis Report

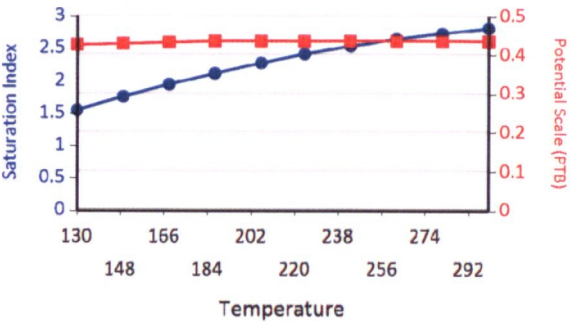
Ca Mg Silicate



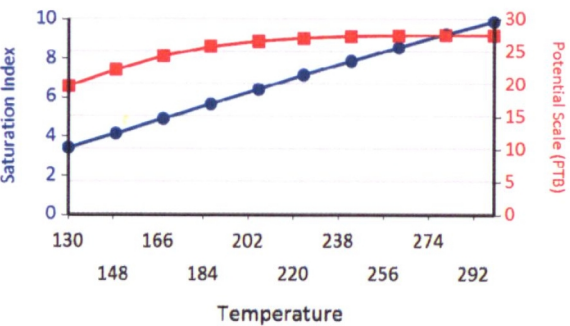
Zinc Sulfide



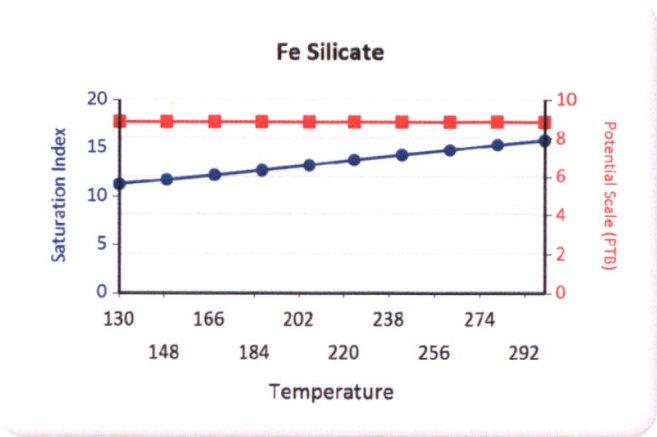
Zinc Carbonate



Mg Silicate



Water Analysis Report





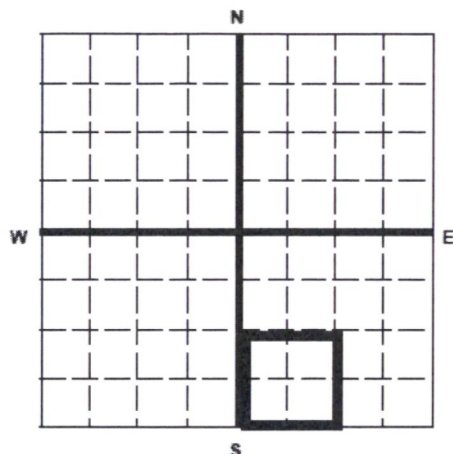
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on
Section Plat - 640 Acres



State
Utah

County
Duchesne

Permit Number
UT2736-04434-04496

Surface Location Description

1/4 of 1/4 of SW 1/4 of SE 1/4 of Section 19 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location 719 ft. from (N/S) S Line of quarter section
and 1340 ft. from (E/W) E Line of quarter section.

WELL ACTIVITY

- ☐ Brine Disposal
☒ Enhanced Recovery
☐ Hydrocarbon Storage

TYPE OF PERMIT

- ☐ Individual
☒ Area

Number of Wells 11 Initial

U2 Entered

Date 3/2/16

Initial BS

Lease Name Ute Indian Tribe

Well Number UTE TRIBAL 19-15

INJECTION PRESSURE

TOTAL VOLUME INJECTED

TUBING - CASING ANNULUS PRESSURE (OPTIONAL MONITORING)

MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	15	1726	1744	255		0	0
February	15	1780	1844	466		0	0
March	15	1817	1848	560		0	0
April	15	1805	1842	626		0	0
May	15	1808	1832	562		0	0
June	15	1806	1837	578		0	0
July	15	1833	1844	578		0	0
August	15	1816	1835	556		0	0
September	15	1812	1845	526		0	0
October	15	1807	1818	525		0	0
November	15	1808	1834	476		0	0
December	15	1801	1819	490		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

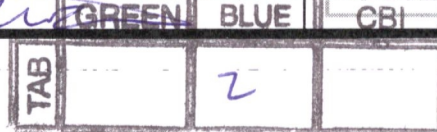
Name and Official Title (Please type or print)

Chad Stevenson, Water Facilities Supervisor

Signature

Date Signed

02/08/2016



Units of Measurement: **Standard**

Water Analysis Report

Production Company: **PETROGLYPH OPERATING CO INC - EBUS**Sales Rep: **James Patry**Well Name: **UTE TRIBAL 19-15 INJ, DUCHESNE**Lab Tech: **Michele Pike**Sample Point: **Well Head**Sample Date: **1/6/2016**Scaling potential predicted using ScaleSoftPitzer from
Brine Chemistry Consortium (Rice University)Sample ID: **WA-327685**

Sample Specifics		Analysis @ Properties in Sample Specifics			
		Cations	mg/L	Anions	mg/L
Test Date:	1/13/2016	Sodium (Na):	4285.95	Chloride (Cl):	5500.00
System Temperature 1 (°F):	60	Potassium (K):	31.08	Sulfate (SO ₄):	70.00
System Pressure 1 (psig):	2000	Magnesium (Mg):	26.49	Bicarbonate (HCO ₃):	2196.00
System Temperature 2 (°F):	180	Calcium (Ca):	58.14	Carbonate (CO ₃):	
System Pressure 2 (psig):	50	Strontium (Sr):	5.36	Acetic Acid (CH ₃ COO)	
Calculated Density (g/ml):	1.0057	Barium (Ba):	6.05	Propionic Acid (C ₂ H ₅ COO)	
pH:	8.30	Iron (Fe):	1.36	Butanoic Acid (C ₃ H ₇ COO)	
Calculated TDS (mg/L):	12204.48	Zinc (Zn):	0.51	Isobutyric Acid ((CH ₃) ₂ CHCOO)	
CO ₂ in Gas (%):		Lead (Pb):	0.32	Fluoride (F):	
Dissolved CO ₂ (mg/L):	0.00	Ammonia (NH ₃):		Bromine (Br):	
H ₂ S in Gas (%):		Manganese (Mn):	0.01	Silica (SiO ₂):	23.21
H ₂ S in Water (mg/L):	0.00	Aluminum (Al):	0.11	Calcium Carbonate (CaCO ₃):	
Tot. Suspended Solids (mg/L):		Lithium (Li):	2.14	Phosphates (PO ₄):	8.97
Corrosivity (Langlier Sat. Index):	0.00	Boron (B):	4.13	Oxygen (O ₂):	
Alkalinity:		Silicon (Si):	10.85		

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO ₄ ·2H ₂ O		Celestite SrSO ₄		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	1.84	48.96	0.65	2.76	0.00	0.00	2.40	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167.00	267.00	1.75	48.27	0.68	2.81	0.00	0.00	2.29	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	483.00	1.67	47.67	0.71	2.87	0.00	0.00	2.19	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	700.00	1.61	47.00	0.76	2.94	0.00	0.00	2.10	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
127.00	917.00	1.54	46.25	0.81	3.02	0.00	0.00	2.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	1133.00	1.48	45.43	0.88	3.11	0.00	0.00	1.91	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	1350.00	1.43	44.57	0.96	3.19	0.00	0.00	1.81	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
87.00	1567.00	1.38	43.68	1.06	3.27	0.00	0.00	1.72	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	1783.00	1.33	42.79	1.17	3.35	0.00	0.00	1.62	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.00	2000.00	1.30	41.91	1.30	3.41	0.00	0.00	1.53	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

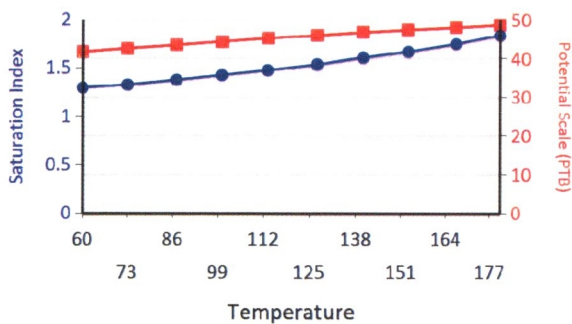
Water Analysis Report

Temp (°F)	PSI	Hemihydrate CaSO ₄ ~0.5H ₂ O		Anhydrate CaSO ₄		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81	0.34	0.00	0.00	5.90	42.52	3.22	26.09	9.32	1.06
167.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	1.65	0.34	0.00	0.00	5.19	37.56	2.79	23.08	8.78	1.06
153.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.33	0.00	0.00	4.57	33.40	2.43	20.49	8.34	1.06
140.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	0.33	0.00	0.00	3.95	29.00	2.07	17.71	7.90	1.06
127.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.32	0.00	0.00	3.32	24.48	1.72	14.84	7.48	1.06
113.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.31	0.00	0.00	2.69	19.95	1.37	11.95	7.06	1.05
100.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.29	0.00	0.00	2.06	15.44	1.01	9.04	6.65	1.05
87.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.25	0.00	0.00	1.43	10.91	0.67	6.12	6.25	1.05
73.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.20	0.00	0.00	0.79	6.29	0.32	3.15	5.86	1.04
60.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.09	0.00	0.00	0.15	1.44	0.00	0.00	5.47	1.04

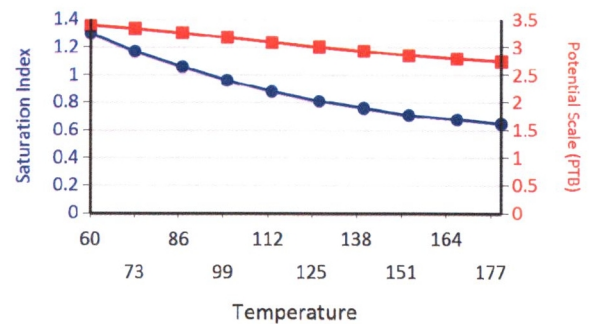
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Fe Silicate

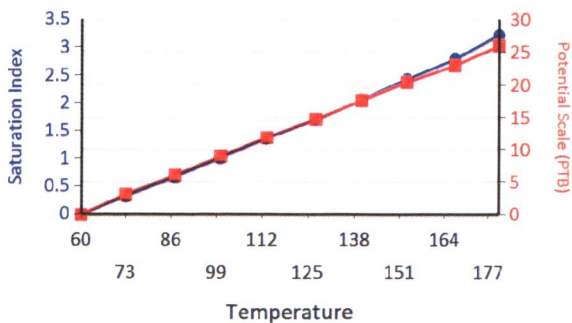
Calcium Carbonate



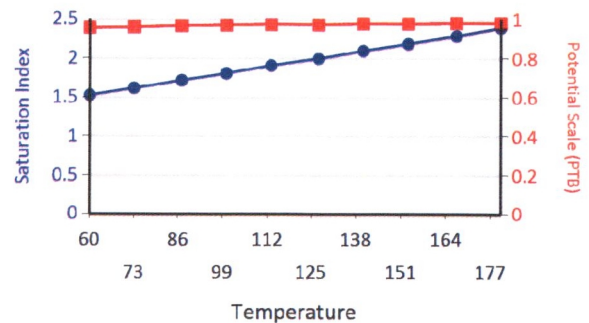
Barium Sulfate



Ca Mg Silicate

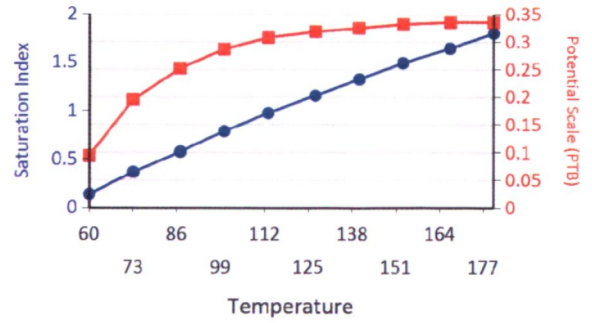


Iron Carbonate

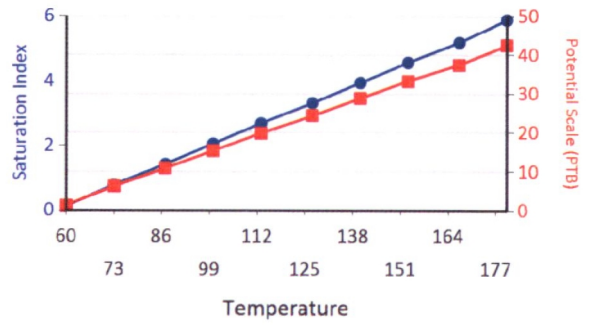


Water Analysis Report

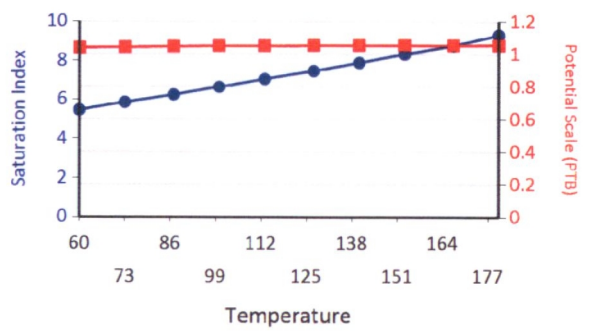
Zinc Carbonate



Mg Silicate



Fe Silicate





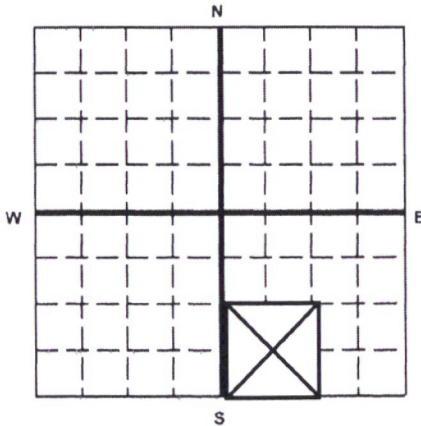
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on
Section Plat - 640 Acres



State
Utah

County
Duchesne

Permit Number
UT2736-04496

Surface Location Description

1/4 of 1/4 of SW 1/4 of SE 1/4 of Section 19 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location 719 ft. from (N/S) S Line of quarter section
and 1340 ft. from (E/W) E Line of quarter section.

WELL ACTIVITY

TYPE OF PERMIT

☐ Brine Disposal

☐ Individual

☒ Enhanced Recovery

☒ Area

☐ Hydrocarbon Storage

Number of Wells 111

Lease Name Ute Indian Tribe

Well Number UTE TRIBAL 19-15

TUBING -- CASING ANNULUS PRESSURE
(OPTIONAL MONITORING)

		INJECTION PRESSURE		TOTAL VOLUME INJECTED			
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	14	1810	1828	856		0	0
February	14	1830	1839	671		0	0
March	14	1826	1853	727		0	0
April	14	1851	1859	913		0	0
May	14	1833	1842	886		0	0
June	14	1839	1857	892		0	0
July	14	1782	1829	499		0	0
August	14	1815	1836	655		0	0
September	14	1718	1814	633		0	0
October	14	1809	1819	660		0	0
November	14	1837	1839	621		0	0
December	14	1832	1854	551		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Chad Stevenson, Water Facilities Supervisor

Signature

Date Signed

2/10/2015

U2 Entered

Date 3/20/15

Initial GW

	GREEN	BLUE	CBI
TAB		1	

Multi-Chem Analytical Laboratory

1553 East Highway 40

Vernal, UT 84078

Units of Measurement: Standard

multi-chem®

A HALLIBURTON SERVICE

Water Analysis Report

Production Company: PETROGLYPH OPERATING CO INC - EBUS

Well Name: UTE TRIBAL 19-15 INJ, DUCHESNE

Sample Point: WELLHEAD

Sample Date: 1/7/2015

Sample ID: WA-297460

Sales Rep: James Patry

Lab Tech: Gary Winegar

Scaling potential predicted using ScaleSoftPitzer from
Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics			
Test Date:	1/14/2015	Cations		Anions	
		mg/L		mg/L	
System Temperature 1 (°F):	160	Sodium (Na):	2164.74	Chloride (Cl):	3000.00
System Pressure 1 (psig):	1300	Potassium (K):	36.38	Sulfate (SO4):	199.00
System Temperature 2 (°F):	80	Magnesium (Mg):	41.83	Bicarbonate (HCO3):	1708.00
System Pressure 2 (psig):	15	Calcium (Ca):	76.88	Carbonate (CO3):	
Calculated Density (g/ml):	1.0022	Strontium (Sr):	5.13	Acetic Acid (CH3COO)	
pH:	8.30	Barium (Ba):	5.41	Propionic Acid (C2H5COO)	
Calculated TDS (mg/L):	7262.34	Iron (Fe):	0.34	Butanoic Acid (C3H7COO)	
CO2 in Gas (%):		Zinc (Zn):	0.05	Isobutyric Acid ((CH3)2CHCOO)	
Dissolved CO2 (mg/L):	0.00	Lead (Pb):	0.06	Fluoride (F):	
H2S in Gas (%):		Ammonia NH3:		Bromine (Br):	
H2S in Water (mg/L):	20.00	Manganese (Mn):	0.07	Silica (SiO2):	24.45

Notes:

B=4.8 Al=.01 Li=1.1

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	1.64	58.07	1.81	3.17	3.01	0.19	1.17	0.23	0.00	0.00	0.00	0.00	0.00	0.00	10.30	0.02
88.00	157.00	1.64	57.10	1.72	3.16	2.92	0.19	1.20	0.23	0.00	0.00	0.00	0.00	0.00	0.00	10.10	0.02
97.00	300.00	1.65	57.64	1.65	3.15	2.86	0.19	1.25	0.23	0.00	0.00	0.00	0.00	0.00	0.00	9.94	0.02
106.00	443.00	1.67	58.20	1.58	3.14	2.81	0.19	1.29	0.23	0.00	0.00	0.00	0.00	0.00	0.00	9.79	0.02
115.00	585.00	1.69	58.78	1.51	3.12	2.77	0.19	1.34	0.23	0.00	0.00	0.00	0.00	0.00	0.00	9.65	0.02
124.00	728.00	1.71	59.37	1.45	3.11	2.73	0.19	1.38	0.24	0.00	0.00	0.00	0.00	0.00	0.00	9.51	0.02
133.00	871.00	1.74	59.96	1.40	3.09	2.71	0.19	1.43	0.24	0.00	0.00	0.00	0.00	0.00	0.00	9.39	0.02
142.00	1014.00	1.77	60.55	1.36	3.08	2.69	0.19	1.47	0.24	0.00	0.00	0.00	0.00	0.00	0.00	9.27	0.02
151.00	1157.00	1.79	61.12	1.31	3.06	2.67	0.19	1.52	0.24	0.00	0.00	0.00	0.00	0.00	0.00	9.17	0.02
160.00	1300.00	1.82	61.68	1.28	3.05	2.66	0.19	1.56	0.24	0.00	0.00	0.00	0.00	0.00	0.00	9.07	0.02

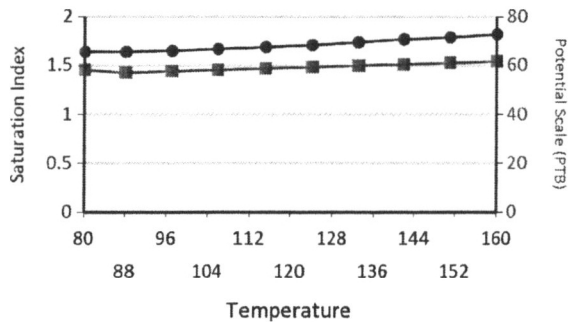
		Hemihydrate CaSO4·0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.65	0.02	1.76	10.58	0.71	4.41	4.26	0.26
88.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.34	0.02	1.99	11.32	0.81	4.79	4.33	0.26
97.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.07	0.02	2.37	13.40	1.01	5.87	4.54	0.26
106.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.82	0.02	2.76	15.53	1.22	6.94	4.77	0.26
115.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01	11.58	0.02	3.15	17.67	1.43	8.01	5.01	0.26
124.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.01	11.36	0.02	3.55	19.79	1.65	9.04	5.26	0.26
133.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.02	11.15	0.02	3.95	21.82	1.87	10.02	5.52	0.26
142.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.02	10.95	0.02	4.35	23.71	2.09	10.95	5.79	0.26
151.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.02	10.76	0.02	4.76	25.36	2.32	11.78	6.06	0.26
160.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.02	10.58	0.02	5.16	26.72	2.55	12.52	6.34	0.26

Water Analysis Report

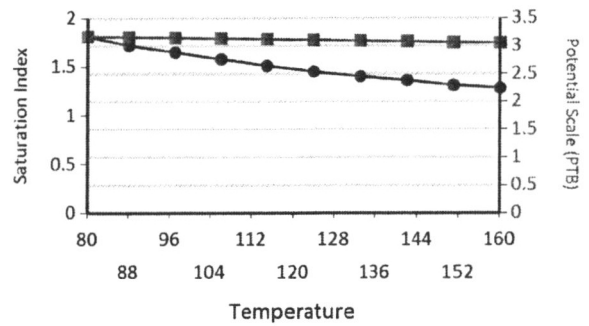
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

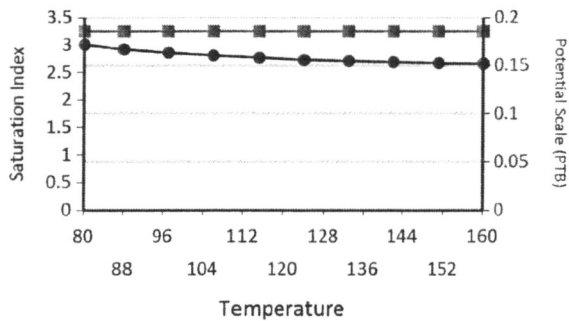
Calcium Carbonate



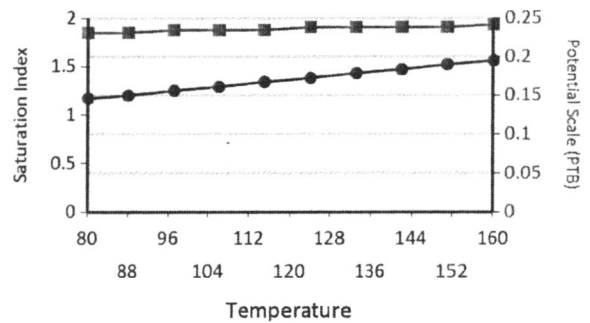
Barium Sulfate



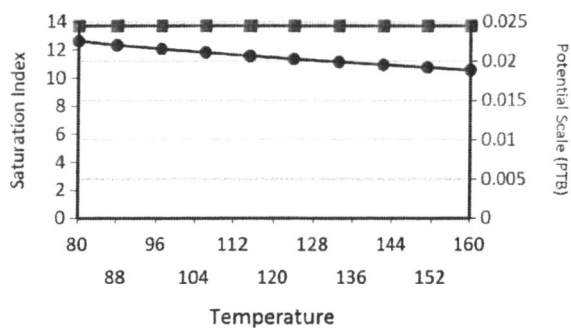
Iron Sulfide



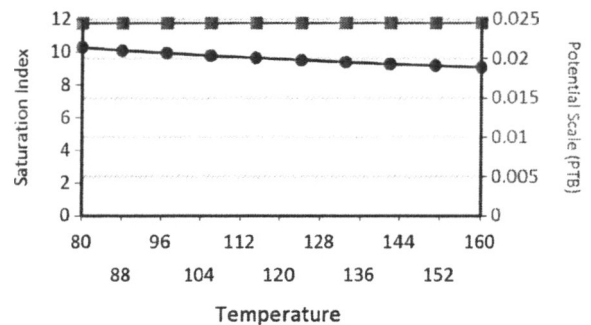
Iron Carbonate



Lead Sulfide

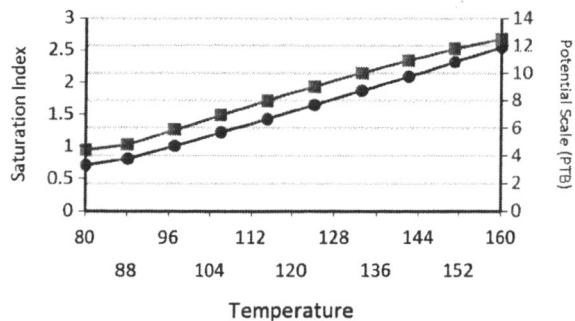


Zinc Sulfide

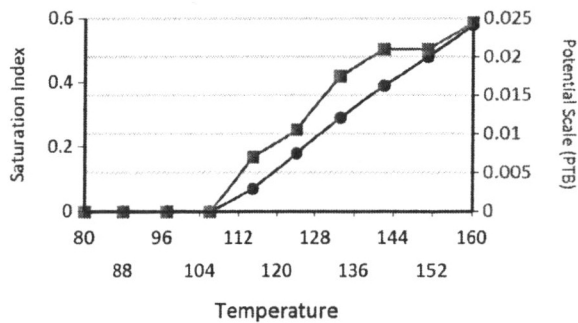


Water Analysis Report

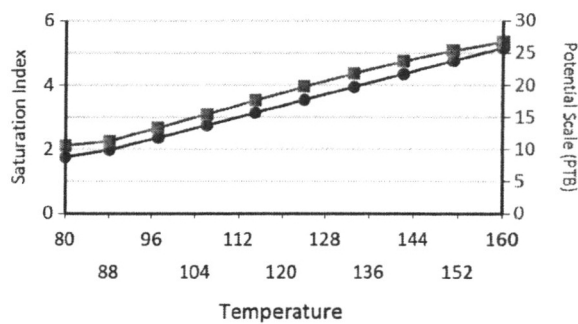
Ca Mg Silicate



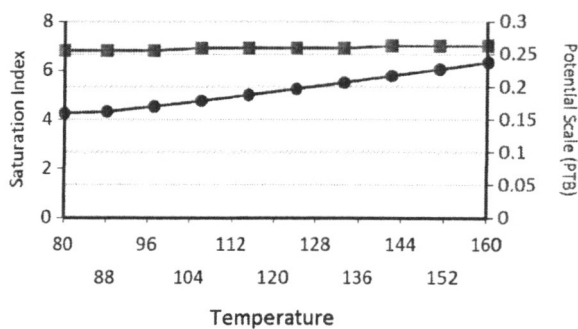
Zinc Carbonate



Mg Silicate



Fe Silicate



September 28, 2015

Gary Wang
Mail Code: 8ENF-UFO
US EPA Region 8
1595 Wyncoop Street
Denver, CO 80202-1129

RE: EPA AREA PERMIT NO. UT2736-04496
Mechanical Integrity Test
Standard Five year retesting for Ute Tribal 19-15

Mr. Breffle:

The enclosed Mechanical Integrity Test was performed on the above referenced well on September 24, 2015. This MIT was performed because the well was due for the regular five year Mechanical Integrity Test.

If you need any more information please call at (435) 722-5302.

Sincerely,
Petroglyph Operating Co., Inc.



Rodrigo Jurado
Regulatory Compliance Specialist

Encl: MIT for the Ute Tribal 19-15

	GREEN	BLUE	
TAB		2	

U2 Entered

Date 10/14/15

Initial DB

Mechanical Integrity Test Tubing/Casing Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program
1595 Wynkoop Street, Denver, CO 80202

EPA Witness: _____ Date: 9/24/15
Test conducted by: CHAD STEVENSON
Others present: _____

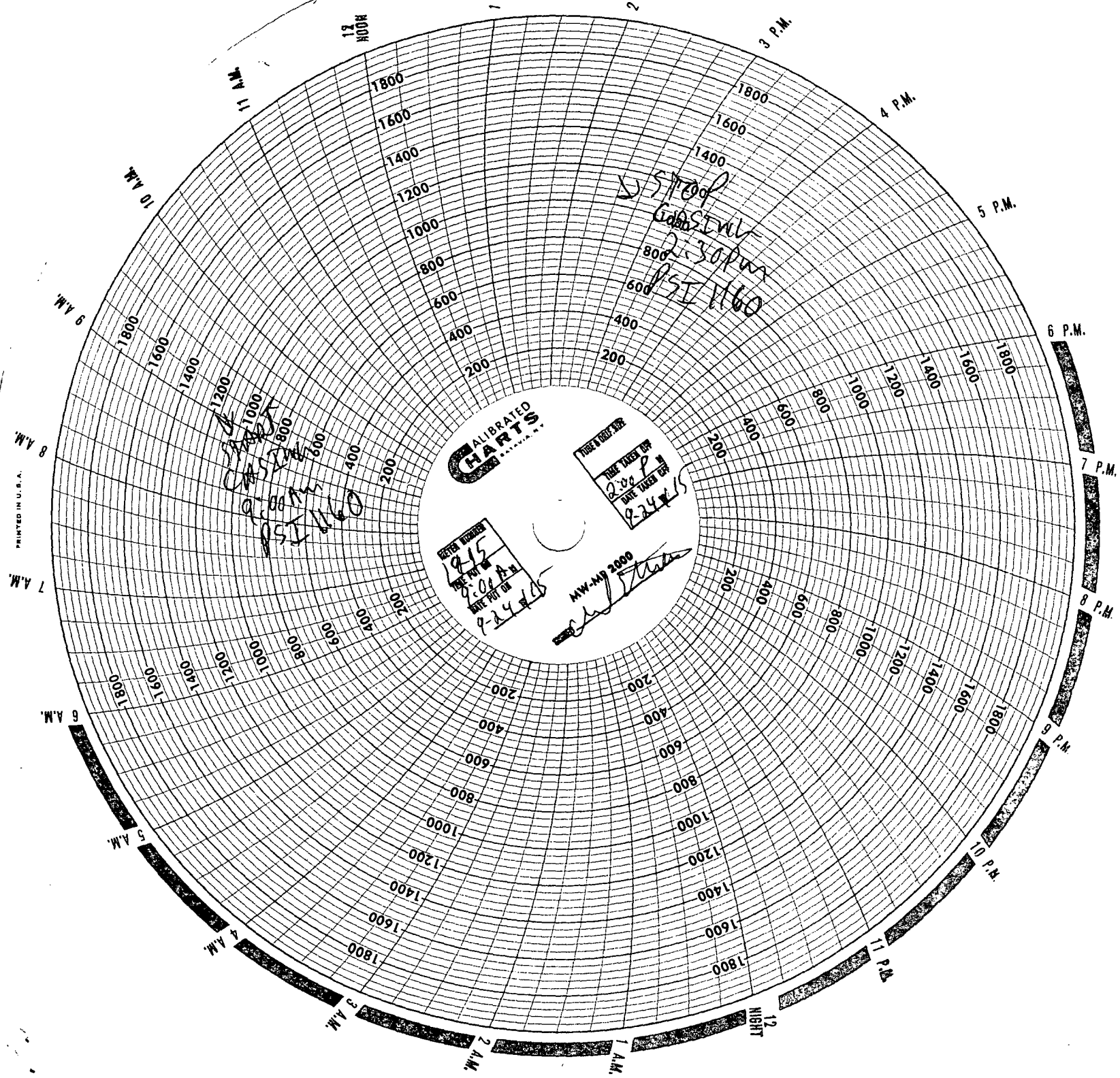
Well Name: <u>19-15</u>	Type: ER SWD	Status: AC TA UC
Field: <u>ANTELOPE CREEK</u>		
Location: <u>19-15</u> Sec: _____ T _____ N/S R _____ E/W County: <u>DUCHESNE</u> State: <u>UT</u>		
Operator: <u>PETROGLYPH ENERGY</u>		
Last MIT: _____		Maximum Allowable Pressure: _____ PSIG

Regularly scheduled test? ☒ Yes [] No
Initial test for permit? [] Yes [] No
Test after well rework? [] Yes [] No

Well injecting during test? If Yes, rate: 19 bpd
Pre-test annulus pressure: _____ psig

MIT DATA TABLE	Test #1	Test #2	Test #3
TUBING	PRESSURE RECORD		
Initial Pressure	1832 psig	psig	psig
End of test pressure	1832 psig	psig	psig
CASING / TUBING ANNULUS	PRESSURE RECORD		
0 minutes	1160 psig	psig	psig
5 minutes	1160 psig	psig	psig
10 minutes	1160 psig	psig	psig
15 minutes	1160 psig	psig	psig
20 minutes	1160 psig	psig	psig
25 minutes	1160 psig	psig	psig
30 minutes	1160 psig	psig	psig
Hours <u>4</u> minutes	1160 psig	psig	psig
_____ minutes	psig	psig	psig
RESULT	[] Pass [] Fail	[] Pass [] Fail	[] Pass [] Fail

Does the annulus pressure build back up after the test? If Yes, _____ psig.





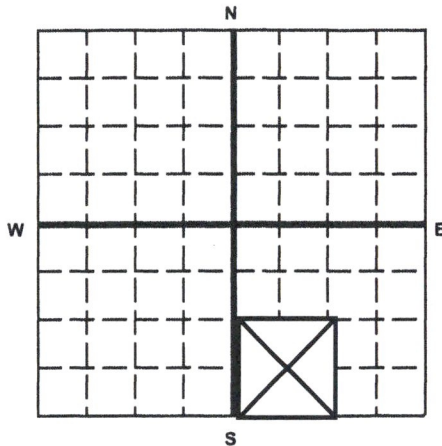
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on
Section Plat - 640 Acres



State Utah County Duchesne Permit Number UT2736-04496

Surface Location Description

1 1/4 of 1 1/4 of SW 1/4 of SE 1/4 of Section 19 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location 719 ft. frm (N/S) S Line of quarter section
and 1340 ft. from (E/W) E Line of quarter section.

WELL ACTIVITY

- ☐ Brine Disposal
☒ Enhanced Recovery
☐ Hydrocarbon Storage

TYPE OF PERMIT

- ☐ Individual
☒ Area

Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 19-15

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	13	1752	1787	57		0	0
February	13	1814	1855	195		0	0
March	13	1805	1820	151		0	0
April	13	1834	1848	255		0	0
May	13	1847	1872	268		0	0
June	13	1830	1867	172		0	60
July	13	1656	1860	185		0	0
August	13	1704	1787	1156		0	0
September	13	1801	1843	852		0	0
October	13	1808	1841	987		0	0
November	13	1831	1846	1025		0	0
December	13	1818	1824	977		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

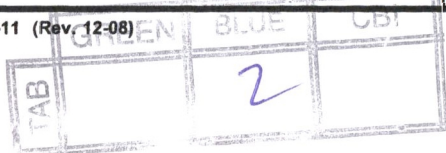
Name and Official Title (Please type or print)

Chad Stevenson, Water Facilities Supervisor

Signature

Date Signed

2/11/2014



U2 Entered

Date

3/20/14

Initial

DS

Units of Measurement: **Standard**

Water Analysis Report

Production Company: **PETROGLYPH ENERGY INC**Sales Rep: **James Patry**Well Name: **UTE TRIBAL 19-15 INJ**Lab Tech: **Gary Winegar**Sample Point: **Wellhead**Sample Date: **1/8/2014**Sample ID: **WA-263014**Scaling potential predicted using ScaleSoftPitzer from
Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics			
Test Date:	1/15/2014	Cations	mg/L	Anions	mg/L
System Temperature 1 (°F):	180	Sodium (Na):	5467.78	Chloride (Cl):	7000.00
System Pressure 1 (psig):	1300	Potassium (K):	71.00	Sulfate (SO4):	130.00
System Temperature 2 (°F):	60	Magnesium (Mg):	17.00	Bicarbonate (HCO3):	2648.00
System Pressure 2 (psig):	15	Calcium (Ca):	44.00	Carbonate (CO3):	
Calculated Density (g/ml):	1.008	Strontium (Sr):	4.60	Acetic Acid (CH3COO)	
pH:	8.40	Barium (Ba):	9.00	Propionic Acid (C2H5COO)	
Calculated TDS (mg/L):	15414.77	Iron (Fe):	1.20	Butanoic Acid (C3H7COO)	
CO2 in Gas (%):		Zinc (Zn):	0.50	Isobutyric Acid ((CH3)2CHCOO)	
Dissolved CO2 (mg/L):	0.00	Lead (Pb):	0.06	Fluoride (F):	
H2S in Gas (%):		Ammonia NH3:		Bromine (Br):	
H2S in Water (mg/L):	0.00	Manganese (Mn):	0.23	Silica (SiO2):	21.40

Notes:

B=5 Al=.04 Li=1

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	1.52	36.20	1.75	5.26	0.00	0.00	1.78	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	157.00	1.53	36.20	1.60	5.22	0.00	0.00	1.85	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86.00	300.00	1.55	36.33	1.48	5.17	0.00	0.00	1.92	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	443.00	1.57	36.47	1.36	5.12	0.00	0.00	1.98	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	585.00	1.60	36.63	1.27	5.06	0.00	0.00	2.05	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126.00	728.00	1.63	36.79	1.18	4.99	0.00	0.00	2.11	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	871.00	1.67	36.95	1.10	4.92	0.00	0.00	2.18	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	1014.00	1.71	37.11	1.04	4.85	0.00	0.00	2.24	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166.00	1157.00	1.75	37.27	0.99	4.78	0.00	0.00	2.29	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.00	1300.00	1.80	37.42	0.94	4.72	0.00	0.00	2.35	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

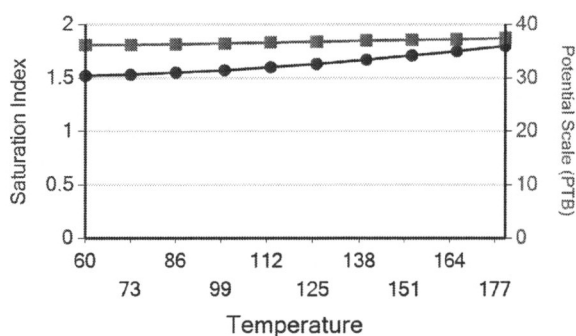
Water Analysis Report

Temp (°F)	PSI	Hemihydrate CaSO ₄ •0.5H ₂ O		Anhydrate CaSO ₄		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.20	0.00	0.00	0.01	0.51	0.00	0.00	5.83	0.92
73.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.25	0.00	0.00	0.48	3.96	0.02	0.59	6.03	0.93
86.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.28	0.00	0.00	1.01	7.58	0.29	2.65	6.30	0.93
100.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.30	0.00	0.00	1.56	10.94	0.58	4.60	6.61	0.93
113.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	0.31	0.00	0.00	2.11	14.01	0.87	6.39	6.93	0.93
126.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	1.28	0.32	0.00	0.00	2.68	16.76	1.18	7.98	7.27	0.93
140.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43	0.32	0.00	0.00	3.24	19.15	1.49	9.33	7.62	0.93
153.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56	0.33	0.00	0.00	3.80	21.16	1.80	10.44	7.98	0.93
166.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69	0.33	0.00	0.00	4.37	22.76	2.12	11.32	8.35	0.93
180.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81	0.33	0.00	0.00	4.93	23.96	2.43	11.98	8.73	0.93

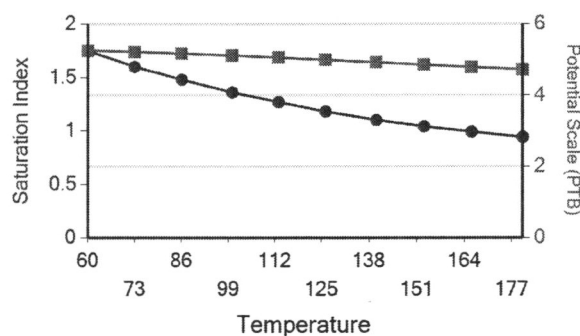
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

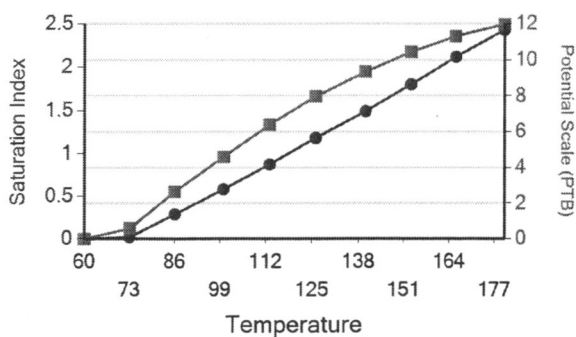
Calcium Carbonate



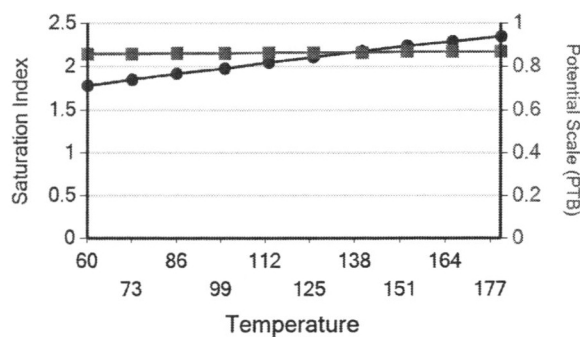
Barium Sulfate



Ca Mg Silicate

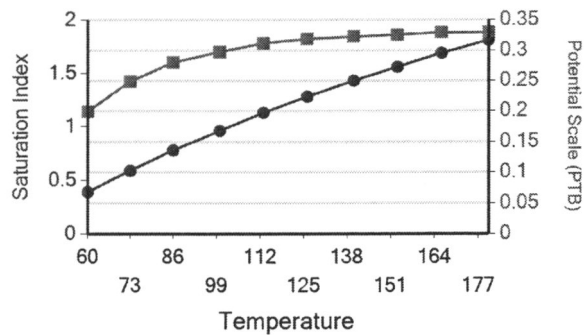


Iron Carbonate

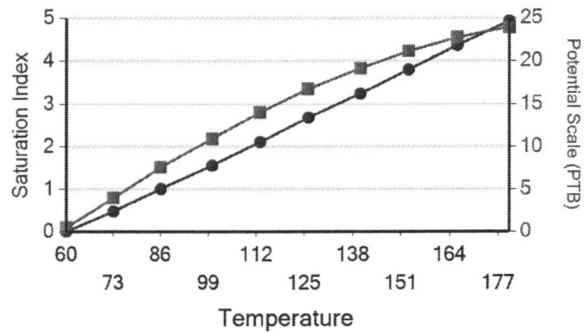


Water Analysis Report

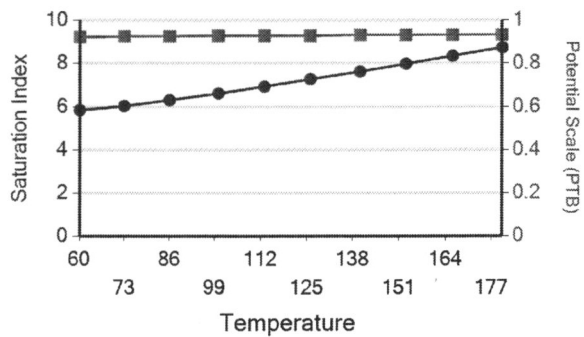
Zinc Carbonate



Mg Silicate



Fe Silicate



Petroglyph Operating Company, Inc.
Annulus Pressure Cause and Mitigation Measures
2013 EPA Annual Injection Report

Well Name: Ute Tribal 19-15

UIC Permit Number: UT2736-04496

API Number: 43-013-31968

Cause of Pressure and Mitigation Measures:

This well sometimes builds up a small amount of pressure due to formation temperature. The pressure is relieved and does not return for some time.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

Ref: 8P-W-GW

JUN 29 2000

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Michael Safford
Operations Coordinator
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

RE: Add Additional Well to Area Permit
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Mr. Safford:

Your request of February 24, 2000, that the following production well be converted to a Class II enhanced oil recovery well and added to the Antelope Creek Waterflood, as authorized under EPA Area Permit No. UT2736-00000, is hereby granted.

NAME	LOCATION	EPA WELL PERMIT NO.
<u>Ute Tribal #19-15</u>	SW SE Section 19 T 5 S - R 3 W Duchesne County, UT	<u>UT2736-04496</u>

This additional well is within the boundary of the existing Area Permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made according to the terms and conditions of that Permit. Unless specifically mentioned in this authorization, conversion is being made under the provisions of 40 CFR §144.33 and the terms and conditions of the original Permit. The proposed well location, well schematic, conversion procedures with/schematic, plugging and abandonment plan with/schematic, and Cement Bond Log (CBL), submitted by your office, have been reviewed and approved as follows:

- (1) The **conversion** plan for this production well has been reviewed, and found satisfactory. EPA analysis of the CBL for this well identified a minimum interval of continuous 80% cement above, across, and below the Green River confining zone (3,960' to 4,080'), pursuant to Region 8 **Ground Water Section Guidance No. 34, Cement Bond Logging Techniques and Interpretation**. Therefore, it is determined that cement in this well provides an effective barrier to upward movement of fluids through vertical channels



Printed on Recycled Paper



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUIT
DENVER, CO 80202-

*Scan under
UT20736 - 04496
81 Add Well to Area
Permit 6/29/2000*

Ref: 8P-W-GW

JUN 29 2000

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Michael Safford
Operations Coordinator
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

RE: **Add Addition**
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Mr. Safford:

Your request of February 24, 2000, that the following production well be converted to a Class II enhanced oil recovery well and added to the Antelope Creek Waterflood, as authorized under EPA Area Permit No. UT2736-00000, is hereby granted.

NAME	LOCATION	EPA WELL PERMIT NO.
<u>Ute Tribal #19-15</u>	SW SE Section 19 T 5 S - R 3 W Duchesne County, UT	<u>UT2736-04496</u>

This additional well is within the boundary of the existing Area Permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made according to the terms and conditions of that Permit. Unless specifically mentioned in this authorization, conversion is being made under the provisions of 40 CFR §144.33 and the terms and conditions of the original Permit. The proposed well location, well schematic, conversion procedures with/schematic, plugging and abandonment plan with/schematic, and Cement Bond Log (CBL), submitted by your office, have been reviewed and approved as follows:

- (1) The **conversion** plan for this production well has been reviewed, and found satisfactory. EPA analysis of the CBL for this well identified a minimum interval of continuous 80% cement above, across, and below the Green River confining zone (3,960' to 4,080'), pursuant to Region 8 **Ground Water Section Guidance No. 34, Cement Bond Logging Techniques and Interpretation**. Therefore, it is determined that cement in this well provides an effective barrier to upward movement of fluids through vertical channels



Printed on Recycled Paper

adjacent to the wellbore (Part II MI) pursuant to 40 CFR § 146.8 (2). Well construction is considered adequate to protect USDWs and no corrective action is required.

- (2) **Maximum injection pressure (MIP)** - please reference the Final Area Permit UT2736-00000, Part II. Section C.5.(b) "the maximum surface injection pressure (MIP) shall not exceed 1900 psig". Until such time that a step-rate injectivity test (SRT) has been performed and approved by the EPA, the initial maximum surface injection pressure (MIP) for the Ute Tribal #19-15 shall not exceed 1900 psig.

Final Area Permit (UT2736-00000), has provisions whereby the permittee may request an increase, or decrease, in the maximum surface injection pressure.

- (3) The plugging and abandonment plan and schematic, submitted by your office, has been reviewed, and approved.

Underground Sources of Drinking Water (USDWs). The base of the USDWs in the Ute Tribal #19-15 is approximately 1,293 feet below ground level and is located within the Uinta Formation. The source for this USDW information is formation water analyses submitted by the operator for twenty-two (22) wells within the initial AOR, and from Publication No. 92 (1987), prepared jointly by the USGS and the Utah Division of Oil, Gas, and Mining.

Injection Interval: Fluid injection shall be limited to the gross zones within the Green River Formation between the approximate depths of 4,080 feet (Top of "B" Marker) and 6,065 feet (Basal Carbonate). The injection (perforated) zones from 4,478 feet to 5,701 within this portion of the Green River Formation, are comprised of porous and permeable lenticular calcareous sandstones interbedded with low permeability carbonates and calcareous shales. The lenticular sandstones vary in thickness from 1 to 30 feet and are individually separated by shale which act as isolation barriers (confining zones) for the waterflood.

Confining Zone: The overall confining zone above the top injection interval (4,478' to 4,482'), is identified in this well from 4,080' to 3,960', and is overlain by impermeable Upper Green River Formation calcareous sandy lacustrine shales and continuous beds of microcrystalline dolomite.

Prior to commencing injection into this well, permittee must fulfill Permit condition PART II, C. 2. and have submitted to the EPA for review and approval, the following:

- (1) All conversion is complete and the permittee has submitted a completed **Well Rework Record (EPA Form 7520-12)**; and
- (2) the **pore pressure of the injection zone has been determined; and**
- (3) the well has successfully completed and passed Part I of the **mechanical integrity test (MIT), with pressure chart**; EPA form enclosed with current MIT Guidance .

Please be aware that Petroglyph does not have authorization to begin injection into the Ute Tribal #19-15 until the items listed above have been approved by the EPA and Petroglyph has received written authorization to begin injection from the EPA.

All other provisions and conditions of the Permit remain as originally issued July 12, 1994, and revised April 30, 1998.

If you have any questions, please contact Mr. Chuck Williams at 303.312.6625. Also, please direct the above requirements to the Ground Water Program Director at the above letterhead address, citing **MAIL CODE 8P-W-GW**. Thank you for your continued cooperation.

Sincerely,



Kerrigan G. Clough
Assistant Regional Administrator
Office of Partnerships and
Regulatory Assistance

Enclosure: Mechanical Integrity Test Form (MIT)
Current MIT Guidance No. 37

cc: Mr. Roland McCook, Chairman
Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

AUG - 9 1995

SUBJECT: GROUND WATER SECTION GUIDANCE NO. 37
Demonstrating Part II (external) Mechanical Integrity
for a Class II injection well permit.

FROM: Tom Pike, Chief *Tom Pike*
UIC Direct Implementation Section

TO: All Section Staff
Montana Operations Office

During the review for a Class II injection well permit, consideration must be given to the mechanical integrity (MI) of the well. MI demonstrates that the well is in sound condition and that the well is constructed in a manner that prevents injected fluids from entering any formation other than the authorized injection formation.

A demonstration of MI is a two part process:

PART I - INTERNAL MECHANICAL INTEGRITY is an assurance that there are no significant leaks in the casing/tubing/packer system.

PART II - EXTERNAL MECHANICAL INTEGRITY demonstrates that after fluid is injected into the formation, the injected fluids will not migrate out of the authorized injection interval through vertical channels adjacent to the wellbore.

A Class II injection well may demonstrate Part II MI by showing that injected fluids remain within the authorized injection interval. This may be accomplished as follows:

- 1) Cement bond log showing 80% bond through the an appropriate interval (Section Guidance 34),
- 2) Radioactive tracer survey conducted according to a EPA-approved procedure, or
- 3) Temperature survey conducted according to a EPA-approved procedure (Section Guidance 38).

For each test option above, the operator of the injection well should submit a plan for conducting the test. The plan will then be approved (or modified and approved) by EPA. EPA's pre-approval of the testing method will assure the operator that the test is conducted consistent with current EPA guidance, and that the test will provide meaningful results.

Part II MI may be demonstrated either before or after issuing the Final Permit. However, if Part II is to be demonstrated after the Final Permit is issued, a provision in the permit will require the demonstration of Part II MI. The well will also be required to pass Part II MI prior to granting authorization to inject.

Radioactive tracer surveys and temperature surveys require that the well be allowed to inject fluids as part of the procedure. In these cases, a well that has shown no other demonstration of Part II MI will be allowed to inject only that volume of fluid that is necessary to conduct the appropriate test.

After the results of the test proves that the well has passed Part II MI, the well will be given authorization to begin full injection operations.

If any of the tests show a lack of Part II MI, the well will be repaired and retested, or plugged (See Headquarters Guidance #76).

Mechanical Integrity Test

Casing or Annulus Pressure Mechanical Integrity Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Direct Implementation Program 8P-W-GW
999 18th Street, Suite 500 Denver, CO 80202-2466

EPA Witness: _____ Date: ____/____/____

Test conducted by: _____

Others present: _____

Well Name: _____	Type: ER SWD	Status: AC TA UC
Field: _____		
Location: _____	Sec: _____ T _____ N/S R _____ E/W	County: _____ State: _____
Operator: _____		
Last MIT: ____/____/____	Maximum Allowable Pressure: _____	PSIG

Is this a regularly scheduled test? ☐ Yes ☐ No

Initial test for permit? ☐ Yes ☐ No

Test after well rework? ☐ Yes ☐ No

Well injecting during test? ☐ Yes ☐ No If Yes, rate: _____ bpd

Pre-test casing/tubing annulus pressure: _____ psig

MIT DATA TABLE		Test #1	Test #2	Test #3
TUBING		PRESSURE		
Initial Pressure	psig	psig	psig	
End of test pressure	psig	psig	psig	
CASING / TUBING		ANNULUS	PRESSURE	
0 minutes	psig	psig	psig	
5 minutes	psig	psig	psig	
10 minutes	psig	psig	psig	
15 minutes	psig	psig	psig	
20 minutes	psig	psig	psig	
25 minutes	psig	psig	psig	
30 minutes	psig	psig	psig	
minutes	psig	psig	psig	
minutes	psig	psig	psig	
RESULT	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	

Does the annulus pressure build back up after the test ? ☐ Yes ☐ No

Is your RETURN ADDRESS completed on the reverse side?

SENDER: 6/29/00 CW 3753C & 3754C

☐ Complete items 1 and/or 2 for additional services.
☐ Complete items 3, 4a, and 4b.
☐ Print your name and address on the reverse of this form so that we can return this card to you.
☐ Attach this form to the front of the mailpiece, or on the back if space does not permit.
☐ Write "Return Receipt Requested" on the mailpiece below the article number.
☐ The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
 2. ☐ Restricted Delivery
 Consult postmaster for fee.

3. Article Addressed to:

Mr. Micheal Safford
Operations Coordinator
Petroglyph Operating Co., Inc.
P.O. Box 607
Roosevelt, UT 84066

4a. Article Number

Z 238 946 788

4b. Service Type

☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

5. Received By: (Print Name)

Debra S White

8. Addressee's Address (Only if requested and fee is paid)

JUL 7 2000

6. Signature: (Addressee or Agent)

X

PS Form 3811, December 1994 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

6/29/00 mailed to Micheal Safford (CW)
 mailed together Certified (# Z238 946 788)
 original green card #3753C
 1. The Tribal #14-15 UT 2136-04496
 and
 2. The Tribal #30-14 UT 2136-04525

Z 238 946 788

US Postal Service 6/29/00 CW 3753C & 3754C
Receipt for Certified Mail 3754C
 No Insurance Coverage Provided.
 Do not use for International Mail (See reverse)

Sent to

Mr. Micheal Safford
Operations Coordinator
Petroglyph Operating Co., Inc.
P.O. Box 607
Roosevelt, UT 84066

Certified Fee **mailed together**

Special Delivery Fee **original green card (3753C)**

Restricted Delivery Fee **The Tribal #14-15**

Return Receipt Showing to Whom & Date Delivered **✓ (3754C)**

Return Receipt Showing to Whom, Date, & Addressee's Address **The Tribal #30-14**

TOTAL Postage & Fees **\$**

Postmark or Date

PS Form 3800, April 1995

Z 238 946 788

US Postal Service 6/29/00 CW 3753C & 3754C
Receipt for Certified Mail 3754C
 No Insurance Coverage Provided.
 Do not use for International Mail (See reverse)

Sent to

Mr. Micheal Safford
Operations Coordinator
Petroglyph Operating Co., Inc.
P.O. Box 607
Roosevelt, UT 84066

Certified Fee **mailed together**

Special Delivery Fee **original green card (3753C)**

Restricted Delivery Fee **The Tribal #14-15**

Return Receipt Showing to Whom & Date Delivered **✓ (3754C)**

Return Receipt Showing to Whom, Date, & Addressee's Address **The Tribal #30-14**

TOTAL Postage & Fees **\$**

Postmark or Date

PS Form 3800, April 1995



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

*Mailed 6/29/00 x6
(#3753G)*

Ref: 8P-W-GW

JUN 29 2000

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Michael Safford
Operations Coordinator
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

RE: Add Additional Well to Area Permit
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Mr. Safford:

Your request of February 24, 2000, that the following production well be converted to a Class II enhanced oil recovery well and added to the Antelope Creek Waterflood, as authorized under EPA Area Permit No. UT2736-00000, is hereby granted.

NAME	LOCATION	EPA WELL PERMIT NO.
<u>Ute Tribal #19-15</u>	SW SE Section 19 T 5 S - R 3 W Duchesne County, UT	<u>UT2736-04496</u>

This additional well is within the boundary of the existing Area Permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made according to the terms and conditions of that Permit. Unless specifically mentioned in this authorization, conversion is being made under the provisions of 40 CFR §144.33 and the terms and conditions of the original Permit. The proposed well location, well schematic, conversion procedures with/schematic, plugging and abandonment plan with/schematic, and Cement Bond Log (CBL), submitted by your office, have been reviewed and approved as follows:

- (1) The **conversion** plan for this production well has been reviewed, and found satisfactory. EPA analysis of the CBL for this well identified a minimum interval of continuous 80% cement above, across, and below the Green River confining zone (3,960' to 4,080'), pursuant to Region 8 **Ground Water Section Guidance No. 34, Cement Bond Logging Techniques and Interpretation**. Therefore, it is determined that cement in this well provides an effective barrier to upward movement of fluids through vertical channels



Printed on Recycled Paper

adjacent to the wellbore (Part II MI) pursuant to 40 CFR § 146.8 (2). Well construction is considered adequate to protect USDWs and no corrective action is required.

- (2) **Maximum injection pressure (MIP)** - please reference the Final Area Permit UT2736-00000, Part II. Section C.5.(b) "the maximum surface injection pressure (MIP) shall not exceed 1900 psig". Until such time that a step-rate injectivity test (SRT) has been performed and approved by the EPA, the initial maximum surface injection pressure (MIP) for the Ute Tribal #19-15 shall not exceed 1900 psig.

Final Area Permit (UT2736-00000), has provisions whereby the permittee may request an increase, or decrease, in the maximum surface injection pressure.

- (3) The plugging and abandonment plan and schematic, submitted by your office, has been reviewed, and approved.

Underground Sources of Drinking Water (USDWs). The base of the USDWs in the Ute Tribal #19-15 is approximately 1,293 feet below ground level and is located within the Uinta Formation. The source for this USDW information is formation water analyses submitted by the operator for twenty-two (22) wells within the initial AOR, and from Publication No. 92 (1987), prepared jointly by the USGS and the Utah Division of Oil, Gas, and Mining.

Injection Interval: Fluid injection shall be limited to the gross zones within the Green River Formation between the approximate depths of 4,080 feet (Top of "B" Marker) and 6,065 feet (Basal Carbonate). The injection (perforated) zones from 4,478 feet to 5,701 within this portion of the Green River Formation, are comprised of porous and permeable lenticular calcareous sandstones interbedded with low permeability carbonates and calcareous shales. The lenticular sandstones vary in thickness from 1 to 30 feet and are individually separated by shale which act as isolation barriers (confining zones) for the waterflood.

Confining Zone: The overall confining zone above the top injection interval (4,478' to 4,482'), is identified in this well from 4,080' to 3,960', and is overlain by impermeable Upper Green River Formation calcareous sandy lacustrine shales and continuous beds of microcrystalline dolomite.

Prior to commencing injection into this well, permittee must fulfill Permit condition PART II, C. 2. and have submitted to the EPA for review and approval, the following:

- (1) All conversion is complete and the permittee has submitted a completed Well Rework Record (EPA Form 7520-12); and
- (2) the pore pressure of the injection zone has been determined; and
- (3) the well has successfully completed and passed Part I of the mechanical integrity test (MIT), with pressure chart; EPA form enclosed with current MIT Guidance .

Please be aware that Petroglyph does not have authorization to begin injection into the Ute Tribal #19-15 until the items listed above have been approved by the EPA and Petroglyph has received written authorization to begin injection from the EPA.

All other provisions and conditions of the Permit remain as originally issued July 12, 1994, and revised April 30, 1998.

If you have any questions, please contact Mr. Chuck Williams at 303.312.6625. Also, please direct the above requirements to the Ground Water Program Director at the above letterhead address, citing MAIL CODE 8P-W-GW. Thank you for your continued cooperation.

Sincerely,



Kerrigan G. Clough
Assistant Regional Administrator
Office of Partnerships and
Regulatory Assistance

Enclosure: Mechanical Integrity Test Form (MIT)
Current MIT Guidance No. 37

cc: Mr. Roland McCook, Chairman
Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

AUG - 9 1995

SUBJECT: GROUND WATER SECTION GUIDANCE NO. 37
Demonstrating Part II (external) Mechanical Integrity
for a Class II injection well permit.

FROM: Tom Pike, Chief *Tom Pike*
UIC Direct Implementation Section

TO: All Section Staff
Montana Operations Office

During the review for a Class II injection well permit, consideration must be given to the mechanical integrity (MI) of the well. MI demonstrates that the well is in sound condition and that the well is constructed in a manner that prevents injected fluids from entering any formation other than the authorized injection formation.

A demonstration of MI is a two part process:

PART I - INTERNAL MECHANICAL INTEGRITY is an assurance that there are no significant leaks in the casing/tubing/packer system.

PART II - EXTERNAL MECHANICAL INTEGRITY demonstrates that after fluid is injected into the formation, the injected fluids will not migrate out of the authorized injection interval through vertical channels adjacent to the wellbore.

A Class II injection well may demonstrate Part II MI by showing that injected fluids remain within the authorized injection interval. This may be accomplished as follows:

- 1) Cement bond log showing 80% bond through the an appropriate interval (Section Guidance 34),
- 2) Radioactive tracer survey conducted according to a EPA-approved procedure, or
- 3) Temperature survey conducted according to a EPA-approved procedure (Section Guidance 38).

For each test option above, the operator of the injection well should submit a plan for conducting the test. The plan will then be approved (or modified and approved) by EPA. EPA's pre-approval of the testing method will assure the operator that the test is conducted consistent with current EPA guidance, and that the test will provide meaningful results.

Part II MI may be demonstrated either before or after issuing the Final Permit. However, if Part II is to be demonstrated after the Final Permit is issued, a provision in the permit will require the demonstration of Part II MI. The well will also be required to pass Part II MI prior to granting authorization to inject.

Radioactive tracer surveys and temperature surveys require that the well be allowed to inject fluids as part of the procedure. In these cases, a well that has shown no other demonstration of Part II MI will be allowed to inject only that volume of fluid that is necessary to conduct the appropriate test.

After the results of the test proves that the well has passed Part II MI, the well will be given authorization to begin full injection operations.

If any of the tests show a lack of Part II MI, the well will be repaired and retested, or plugged (See Headquarters Guidance #76).

Mechanical Integrity Test

Casing or Annulus Pressure Mechanical Integrity Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Direct Implementation Program 8P-W-GW
999 18th Street, Suite 500 Denver, CO 80202-2466

EPA Witness: _____ Date: ____/____/____

Test conducted by: _____

Others present: _____

Well Name: _____	Type: ER SWD	Status: AC TA UC
Field: _____		
Location: _____	Sec: _____ T _____ N/S R _____ E/W	County: _____ State: _____
Operator: _____		
Last MIT: ____/____/____	Maximum Allowable Pressure: _____	PSIG

Is this a regularly scheduled test? ☐ Yes ☐ No

Initial test for permit? ☐ Yes ☐ No

Test after well rework? ☐ Yes ☐ No

Well injecting during test? ☐ Yes ☐ No If Yes, rate: _____ bpd

Pre-test casing/tubing annulus pressure: _____ psig

MIT DATA TABLE	Test #1	Test #2	Test #3
TUBING PRESSURE			
Initial Pressure	psig	psig	psig
End of test pressure	psig	psig	psig
CASING / TUBING ANNULUS PRESSURE			
0 minutes	psig	psig	psig
5 minutes	psig	psig	psig
10 minutes	psig	psig	psig
15 minutes	psig	psig	psig
20 minutes	psig	psig	psig
25 minutes	psig	psig	psig
30 minutes	psig	psig	psig
minutes	psig	psig	psig
minutes	psig	psig	psig
RESULT	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

Does the annulus pressure build back up after the test ? ☐ Yes ☐ No



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

CONCURRENCE COPY

Ref: 8P-W-GW

JUN 29 2000

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Michael Safford
Operations Coordinator
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

RE: **Add Additional Well to Area Permit**
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Mr. Safford:

Your request of February 24, 2000, that the following production well be converted to a Class II enhanced oil recovery well and added to the Antelope Creek Waterflood, as authorized under EPA Area Permit No. UT2736-00000, is hereby granted.

NAME	LOCATION	EPA WELL PERMIT NO.
<u>Ute Tribal #19-15</u>	SW SE Section 19 T 5 S - R 3 W Duchesne County, UT	<u>UT2736-04496</u>

This additional well is within the boundary of the existing Area Permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made according to the terms and conditions of that Permit. Unless specifically mentioned in this authorization, conversion is being made under the provisions of 40 CFR §144.33 and the terms and conditions of the original Permit. The proposed well location, well schematic, conversion procedures with/schematic, plugging and abandonment plan with/schematic, and Cement Bond Log (CBL), submitted by your office, have been reviewed and approved as follows:

- (1) The **conversion** plan for this production well has been reviewed, and found satisfactory. EPA analysis of the CBL for this well identified a minimum interval of continuous 80% cement above, across, and below the Green River confining zone (3,960' to 4,080'), pursuant to Region 8 **Ground Water Section Guidance No. 34, Cement Bond Logging Techniques and Interpretation**. Therefore, it is determined that cement in this well provides an effective barrier to upward movement of fluids through vertical channels



Printed on Recycled Paper

Handwritten notes:
C&W 6/20/00
8P-W-GW 6/28/00
6/28/00
6/29/00
6/24/00

adjacent to the wellbore (Part II MI) pursuant to 40 CFR § 146.8 (2). Well construction is considered adequate to protect USDWs and no corrective action is required.

- (2) **Maximum injection pressure (MIP)** - please reference the Final Area Permit UT2736-00000, Part II. Section C.5.(b) "the maximum surface injection pressure (MIP) shall not exceed 1900 psig". Until such time that a **step-rate injectivity test (SRT)** has been performed and approved by the EPA, the initial maximum surface injection pressure (MIP) for the Ute Tribal #19-15 shall not exceed 1900 psig.

Final Area Permit (UT2736-00000), has provisions whereby the permittee may request an increase, or decrease, in the maximum surface injection pressure.

- (3) The **plugging and abandonment plan and schematic**, submitted by your office, has been reviewed, and approved.

Underground Sources of Drinking Water (USDWs). The base of the USDWs in the Ute Tribal #19-15 is approximately 1,293 feet below ground level and is located within the Uinta Formation. The source for this USDW information is formation water analyses submitted by the operator for twenty-two (22) wells within the initial AOR, and from Publication No. 92 (1987), prepared jointly by the USGS and the Utah Division of Oil, Gas, and Mining.

Injection Interval: Fluid injection shall be limited to the gross zones within the Green River Formation between the approximate depths of 4,080 feet (Top of "B" Marker) and 6,065 feet (Basal Carbonate). The injection (perforated) zones from 4,478 feet to 5,701 within this portion of the Green River Formation, are comprised of porous and permeable lenticular calcareous sandstones interbedded with low permeability carbonates and calcareous shales. The lenticular sandstones vary in thickness from 1 to 30 feet and are individually separated by shale which act as isolation barriers (confining zones) for the waterflood.

Confining Zone: The overall confining zone above the top injection interval (4,478' to 4,482'), is identified in this well from 4,080' to 3,960', and is overlain by impermeable Upper Green River Formation calcareous sandy lacustrine shales and continuous beds of microcrystalline dolomite.

Prior to commencing injection into this well, permittee must fulfill Permit condition PART II, C. 2. and have submitted to the EPA for review and approval, the following:

- (1) All conversion is complete and the permittee has submitted a completed **Well Rework Record (EPA Form 7520-12)**; and
- (2) the **pore pressure of the injection zone has been determined; and**
- (3) the well has successfully completed and passed **Part I of the mechanical integrity test (MIT), with pressure chart**; EPA form enclosed with current MIT Guidance .

Please be aware that Petroglyph does not have authorization to begin injection into the Ute Tribal #19-15 until the items listed above have been approved by the EPA and Petroglyph has received written authorization to begin injection from the EPA.

All other provisions and conditions of the Permit remain as originally issued July 12, 1994, and revised April 30, 1998.

If you have any questions, please contact Mr. Chuck Williams at 303.312.6625. Also, please direct the above requirements to the Ground Water Program Director at the above letterhead address, citing **MAIL CODE 8P-W-GW**. Thank you for your continued cooperation.

Sincerely,

Kerrigan G. Clough
Assistant Regional Administrator
Office of Partnerships and
Regulatory Assistance

Enclosure: Mechanical Integrity Test Form (MIT)
Current MIT Guidance No. 37

cc: Mr. Roland McCook, Chairman
Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466

JAN 4 2001

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Micheal Safford
Operations Coordinator
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

Re: AUTHORIZATION TO COMMENCE INJECTION
Ute Tribal #19-15 (UT04496)
Antelope Creek Field
EPA AREA PERMIT UT2736-00000
Duchesne County, Utah

Dear Mr. Safford:

Thank you for submitting information pertaining to Ute Tribal #19-15 to the Environmental Protection Agency (EPA) Region VIII Ground Water Program. Requirements of UIC Area Permit UT2736-00000 Part II Sections (C)(2) "Prior To Commencing Injection" required submittal of the following information:

1. Well Rework Record (EPA Form 7520-12) with after conversion well schematic; and
2. a successfully run Mechanical Integrity Test (MIT) with pressure chart; and
3. injection zone fluid pore pressure survey.

All required information has been submitted, and has been reviewed and approved by the EPA. Petroglyph has complied with all pertinent conditions of UIC Area Permit UT2736-00000 Part II Section (C)(2). Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal #19-15 under the conditions of UIC Area Permit UT2736-00000. The Director has determined that the maximum surface injection pressure for the Ute Tribal #19-15 shall not exceed 1900 psig.



Printed on Recycled Paper



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-246

JAN 4 2001

*Scan under
UT 20736-04496
220 Authorization to
Inject - Final 1/4/2001*

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Micheal Safford
Operations Coordinator
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

Re: AUTHORIZATION TO COMMENCE INJECTION
Ute Tribal #19-15 (UT04496)
Antelope Creek Field
EPA AREA PERMIT UT2736-00000
Duchesne County, Utah

Dear Mr. Safford:

Thank you for submitting information pertaining to Ute Tribal #19-15 to the Environmental Protection Agency (EPA) Region VIII Ground Water Program. Requirements of UIC Area Permit UT2736-00000 Part II Sections (C)(2) "Prior To Commencing Injection" required submittal of the following information:

1. Well Rework Record (EPA Form 7520-12) with after conversion well schematic; and
2. a successfully run Mechanical Integrity Test (MIT) with pressure chart; and
3. injection zone fluid pore pressure survey.

All required information has been submitted, and has been reviewed and approved by the EPA. Petroglyph has complied with all pertinent conditions of UIC Area Permit UT2736-00000 Part II Section (C)(2). Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal #19-15 under the conditions of UIC Area Permit UT2736-00000. The Director has determined that the maximum surface injection pressure for the Ute Tribal #19-15 shall not exceed 1900 psig.



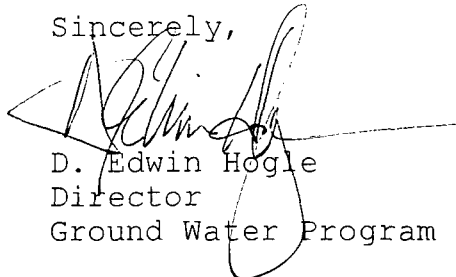
Please be reminded that it is the responsibility of the permittee to be aware of, and to comply with, all conditions of the Permit. Effective upon receipt of this letter, EPA administration of this well is transferred to Mr. Al Craver, Compliance Officer in the Office of Enforcement, Compliance, and Environmental Justice Technical Enforcement Program, who is your point of contact for routine compliance matters and reports.

Please send all reporting forms and other required correspondence to Mr. Craver at the address listed below, referencing **EPA WELL ID NO: UT04496** on all reports and correspondence.

Mr. Al Craver,
Technical Enforcement Program, Mail Code 8ENF-T
U.S. Environmental Protection Agency
999 18th Street, Suite 300
Denver, Colorado, USA, 80202-2466

If you have any questions concerning this authorization or the Permit, please contact Mr. Dan Jackson of my staff at 303.312.6155 or Mr. Craver at 303.312.7821.

Sincerely,



D. Edwin Hogle
Director
Ground Water Program

cc: Mr. Roland McCook, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Mr. Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office

for poor:
 UTE TRIBAL #19-15
 (UT2736-04496) (3902C)

Z 159 952 271
 US Postal Service 01/04/01 CW 3901C-
 Receipt for Certified Mail 3904C
 No Insurance Coverage Provided.
 Do not use for international Mail (See reverse)

Sent to
Mr. Micheal Safford
 Operations Coordinator
 Petroglyph Operating Co., Inc.
 P.O. Box 607
 Roosevelt, UT 84066

Certified Fee **ORIGINAL GREENCARD**
 Special Delivery Fee **UTE TRIBAL #19-05**
 Restricted Delivery Fee **(UT2736-04535)**
 Return Receipt Showing to Whom & Date Delivered
 Return Receipt Showing to Whom, Date, & Addressee's Address
 TOTAL Postage & Fees \$
 Postmark or Date

Is your RETURN ADDRESS completed on the reverse side?

SENDER: 01/04/01 CW 3901C - 3904C

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to: **Original GreenCard** 4a. Article Number **Z 159 952 271**

Mr. Micheal Safford JAN 4 2001
 Operations Coordinator
 Petroglyph Operating Co., Inc.
 P.O. Box 607
 Roosevelt, UT 84066

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery **1-9-01**

5. Received By: (Print Name) *[Signature]*

6. Signature: (Addressee or Agent) *[Signature]*

8. Addressee's Address (Only if requested and fee is paid) **Rec'd (X)**
JAN 16 2001

PS Form 3811, December 1994 102595-97-B-0179 Domestic Return Receipt

1/04/01 to Micheal Safford
 (Certified letters mailed together)
 (#3901C, 3902C, 3903C & 3904C)
 Original green card #3901C
 1. UTE TRIBAL #19-05 (UT2736-04535)
 2. UTE TRIBAL #19-15 (UT2736-04496) (3902C)
 3. UTE TRIBAL #30-16 (UT2736-04417) (3903C)
 4. UTE TRIBAL #30-06 (UT2736-04546) (3904C)

PS Form 3800, April 1995

Thank you for using Return Receipt Service.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466

JAN 4 2001

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Micheal Safford
Operations Coordinator
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

Re: AUTHORIZATION TO COMMENCE INJECTION
Ute Tribal #19-15 (UT04496)
Antelope Creek Field
EPA AREA PERMIT UT2736-00000
Duchesne County, Utah

Dear Mr. Safford:

Thank you for submitting information pertaining to Ute Tribal #19-15 to the Environmental Protection Agency (EPA) Region VIII Ground Water Program. Requirements of UIC Area Permit UT2736-00000 Part II Sections (C)(2) "Prior To Commencing Injection" required submittal of the following information:

1. Well Rework Record (EPA Form 7520-12) with after conversion well schematic; and
2. a successfully run Mechanical Integrity Test (MIT) with pressure chart; and
3. injection zone fluid pore pressure survey.

All required information has been submitted, and has been reviewed and approved by the EPA. Petroglyph has complied with all pertinent conditions of UIC Area Permit UT2736-00000 Part II Section (C)(2). Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal #19-15 under the conditions of UIC Area Permit UT2736-00000. The Director has determined that the maximum surface injection pressure for the Ute Tribal #19-15 shall not exceed 1900 psig.



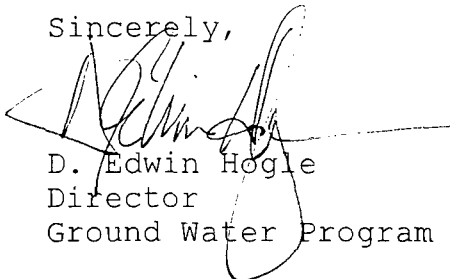
Please be reminded that it is the responsibility of the permittee to be aware of, and to comply with, all conditions of the Permit. Effective upon receipt of this letter, EPA administration of this well is transferred to Mr. Al Craver, Compliance Officer in the Office of Enforcement, Compliance, and Environmental Justice Technical Enforcement Program, who is your point of contact for routine compliance matters and reports.

Please send all reporting forms and other required correspondence to Mr. Craver at the address listed below, referencing **EPA WELL ID NO: UT04496** on all reports and correspondence.

Mr. Al Craver,
Technical Enforcement Program, Mail Code 8ENF-T
U.S. Environmental Protection Agency
999 18th Street, Suite 300
Denver, Colorado, USA, 80202-2466

If you have any questions concerning this authorization or the Permit, please contact Mr. Dan Jackson of my staff at 303.312.6155 or Mr. Craver at 303.312.7821.

Sincerely,



D. Edwin Hogle
Director
Ground Water Program

cc: Mr. Roland McCook, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Mr. Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office

Z 159 952 271

US Postal Service 01/04/01 CW 3901C-
Receipt for Certified Mail 3904C
No Insurance Coverage Provided.
Do not use for international Mail (See reverse)

Sent to
Mr. Micheal Safford
Special Number
Operations Coordinator
Post Office, State, ZIP Code
Petroglyph Operating Co., Inc.
P.O. Box 607
Roosevelt, UT 84066

Certified Fee	ORIGINAL GREEN CARD
---------------	----------------------------

Special Delivery Fee	UTE TRIBAL # 19-05
----------------------	---------------------------

Restricted Delivery Fee	(UT2736-04535)
-------------------------	-----------------------

Return Receipt Showing to Whom & Date Delivered	
---	--

Return Receipt Showing to Whom, Date, & Addressee's Address	
---	--

TOTAL Postage & Fees	\$
----------------------	----

Postmark or Date	
------------------	--

PS Form 3800, April 1995



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466

JAN 4 2001

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Micheal Safford
Operations Coordinator
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

Re: AUTHORIZATION TO COMMENCE INJECTION
Ute Tribal #19-15 (UT04496)
Antelope Creek Field
EPA AREA PERMIT UT2736-00000
Duchesne County, Utah

Dear Mr. Safford:

Thank you for submitting information pertaining to Ute Tribal #19-15 to the Environmental Protection Agency (EPA) Region VIII Ground Water Program. Requirements of UIC Area Permit UT2736-00000 Part II Sections (C)(2) "Prior To Commencing Injection" required submittal of the following information:

1. Well Rework Record (EPA Form 7520-12) with after conversion well schematic; and
2. a successfully run Mechanical Integrity Test (MIT) with pressure chart; and
3. injection zone fluid pore pressure survey.

All required information has been submitted, and has been reviewed and approved by the EPA. Petroglyph has complied with all pertinent conditions of UIC Area Permit UT2736-00000 Part II Section (C)(2). Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal #19-15 under the conditions of UIC Area Permit UT2736-00000. The Director has determined that the maximum surface injection pressure for the Ute Tribal #19-15 shall not exceed 1900 psig.



Printed on Recycled Paper

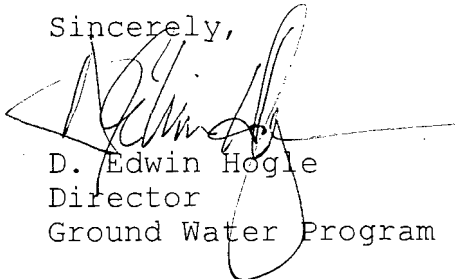
Please be reminded that it is the responsibility of the permittee to be aware of, and to comply with, all conditions of the Permit. Effective upon receipt of this letter, EPA administration of this well is transferred to Mr. Al Craver, Compliance Officer in the Office of Enforcement, Compliance, and Environmental Justice Technical Enforcement Program, who is your point of contact for routine compliance matters and reports.

Please send all reporting forms and other required correspondence to Mr. Craver at the address listed below, referencing **EPA WELL ID NO: UT04496** on all reports and correspondence.

Mr. Al Craver,
Technical Enforcement Program, Mail Code 8ENF-T
U.S. Environmental Protection Agency
999 18th Street, Suite 300
Denver, Colorado, USA, 80202-2466

If you have any questions concerning this authorization or the Permit, please contact Mr. Dan Jackson of my staff at 303.312.6155 or Mr. Craver at 303.312.7821.

Sincerely,



D. Edwin Hogle
Director
Ground Water Program

cc: Mr. Roland McCook, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Mr. Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466

JAN 4 2001

CONCURRENCE COPY

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Micheal Safford
Operations Coordinator
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

Re: AUTHORIZATION TO COMMENCE INJECTION
Ute Tribal #19-15 (UT04496)
Antelope Creek Field
EPA AREA PERMIT UT2736-00000
Duchesne County, Utah

Dear Mr. Safford:

Thank you for submitting information pertaining to Ute Tribal #19-15 to the Environmental Protection Agency (EPA) Region VIII Ground Water Program. Requirements of UIC Area Permit UT2736-00000 Part II Sections (C)(2) "Prior To Commencing Injection" required submittal of the following information:

1. Well Rework Record (EPA Form 7520-12) with after conversion well schematic; and
2. a successfully run Mechanical Integrity Test (MIT) with pressure chart; and
3. injection zone fluid pore pressure survey.

All required information has been submitted, and has been reviewed and approved by the EPA. Petroglyph has complied with all pertinent conditions of UIC Area Permit UT2736-00000 Part II Section (C)(2). Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal #19-15 under the conditions of UIC Area Permit UT2736-00000. The Director has determined that the maximum surface injection pressure for the Ute Tribal #19-15 shall not exceed 1900 psig.

CEW
12/28/00

8P-W-GW
1/3/2001
mailed
1/04/01 LG

Handwritten signature and initials

Please be reminded that it is the responsibility of the permittee to be aware of, and to comply with, all conditions of the Permit. Effective upon receipt of this letter, EPA administration of this well is transferred to Mr. Al Craver, Compliance Officer in the Office of Enforcement, Compliance, and Environmental Justice Technical Enforcement Program, who is your point of contact for routine compliance matters and reports.

Please send all reporting forms and other required correspondence to Mr. Craver at the address listed below, referencing **EPA WELL ID NO: UT04496** on all reports and correspondence.

Mr. Al Craver,
Technical Enforcement Program, Mail Code 8ENF-T
U.S. Environmental Protection Agency
999 18th Street, Suite 300
Denver, Colorado, USA, 80202-2466

If you have any questions concerning this authorization or the Permit, please contact Mr. Dan Jackson of my staff at 303.312.6155 or Mr. Craver at 303.312.7821.

Sincerely,

D. Edwin Hogle
Director
Ground Water Program

cc: Mr. Roland McCook, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Mr. Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466

JAN 4 2001

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Micheal Safford
Operations Coordinator
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

Re: AUTHORIZATION TO COMMENCE INJECTION
Ute Tribal #19-15 (UT04496)
Antelope Creek Field
EPA AREA PERMIT UT2736-00000
Duchesne County, Utah

Dear Mr. Safford:

Thank you for submitting information pertaining to Ute Tribal #19-15 to the Environmental Protection Agency (EPA) Region VIII Ground Water Program. Requirements of UIC Area Permit UT2736-00000 Part II Sections (C)(2) "Prior To Commencing Injection" required submittal of the following information:

1. Well Rework Record (EPA Form 7520-12) with after conversion well schematic; and
2. a successfully run Mechanical Integrity Test (MIT) with pressure chart; and
3. injection zone fluid pore pressure survey.

All required information has been submitted, and has been reviewed and approved by the EPA. Petroglyph has complied with all pertinent conditions of UIC Area Permit UT2736-00000 Part II Section (C)(2). Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal #19-15 under the conditions of UIC Area Permit UT2736-00000. The Director has determined that the maximum surface injection pressure for the Ute Tribal #19-15 shall not exceed 1900 psig.



Printed on Recycled Paper

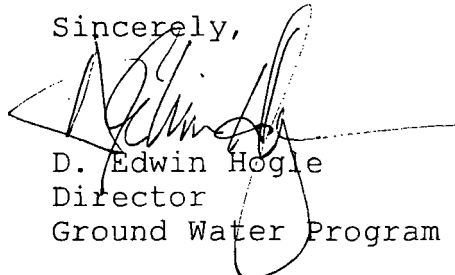
Please be reminded that it is the responsibility of the permittee to be aware of, and to comply with, all conditions of the Permit. Effective upon receipt of this letter, EPA administration of this well is transferred to Mr. Al Craver, Compliance Officer in the Office of Enforcement, Compliance, and Environmental Justice Technical Enforcement Program, who is your point of contact for routine compliance matters and reports.

Please send all reporting forms and other required correspondence to Mr. Craver at the address listed below, referencing **EPA WELL ID NO: UT04496** on all reports and correspondence.

Mr. Al Craver,
Technical Enforcement Program, Mail Code 8ENF-T
U.S. Environmental Protection Agency
999 18th Street, Suite 300
Denver, Colorado, USA, 80202-2466

If you have any questions concerning this authorization or the Permit, please contact Mr. Dan Jackson of my staff at 303.312.6155 or Mr. Craver at 303.312.7821.

Sincerely,



D. Edwin Hogle
Director
Ground Water Program

cc: Mr. Roland McCook, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Mr. Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office